

WHAT IS CLAIMED IS:

1. A vascular device comprising a proximal portion, an intermediate portion, a distal portion, and a plurality of vessel engaging members, the device movable from a collapsed insertion position having a first diameter to a second expanded position having a second diameter larger than the first diameter, the plurality of vessel engaging members extending outwardly from the device for securely engaging the internal wall of a vessel upon expansion of the device to the second expanded position, the vessel engaging members pulling the internal wall of the vessel radially inwardly upon movement of the device from the second expanded position toward a first expanded position having a third diameter, the third diameter being greater than the first diameter and less than the second diameter.
2. The vascular device of claim 1, wherein the device is composed of shape memory material and the first expanded position substantially corresponds to the memorized position of the device.
3. The vascular device of claim 1, wherein the device is composed of shape memory material and is initially movable from the collapsed position to the first expanded position in response to exposure to body temperature, and is subsequently moved from the first expanded position to the second expanded position by an expandable member.
4. The vascular device of claim 1, wherein the device is composed of shape memory material and is movable from the collapsed position to the second expanded position by the substantial simultaneous exposure to body temperature and expansion by an expandable member.
5. The vascular device of claim 2, wherein the device returns to the memorized position in response to exposure to body temperature.
6. The vascular device of claim 1, wherein the device is expanded to the second expanded position by mechanical means positioned within the device.

7. The vascular device of claim 1, wherein the device is moved to the second expanded position by expansion of a balloon positioned within the device.
8. The vascular device of claim 1, wherein the vessel engaging members have sharp ends and extend from the distal portion and from the proximal portion of the device.
9. The vascular device of claim 8, wherein each of the vessel engaging members includes a barb, the sharp ends limiting axial movement of the vessel wall and the barb limiting radial movement of the vessel wall to enhance retention of the vessel.
10. The vascular device of claim 1, wherein in the collapsed position the intermediate portion includes a plurality of longitudinal strips with a gap between adjacent strips, the vessel engaging members being formed by respective cuts in the longitudinal strips, the longitudinal strips buckling radially outwardly upon expansion of the device.
11. The vascular device of claim 1, wherein the vessel engaging members extend from the proximal portion and the distal portion and include hooks, the hooks extending substantially parallel to a longitudinal axis of the device in the collapsed position and substantially perpendicular to the longitudinal axis in the expanded position.
12. The vascular device of claim 1, wherein the device includes a plurality of longitudinal strips, each of the longitudinal strips terminating at opposing ends in one of the vessel engaging members.
13. The vascular device of claim 12, further comprising a substantially straight slot formed in each of the longitudinal strips in the collapsed position of the device, each slot transforming to a substantially diamond shape when the device is moved to the first expanded position.

14. The vascular device of claim 13, wherein each of the vessel engaging members includes a sharp penetrating tip and a barb.
15. The vascular device claim 14, wherein the longitudinal strips are connected by transverse ribs, the ribs being in substantial axial alignment.
16. A vascular device comprising a tubular-like member having a longitudinal axis, and proximal and distal ends, the member being expandable from a collapsed configuration to an expanded configuration, and a plurality of hooks extending from the tubular member at the proximal end and the distal end, the hooks extending substantially parallel to the longitudinal axis in the collapsed position and substantially perpendicular to the longitudinal axis in the extended position.
17. The vascular device of claim 16, further comprising barbs adjacent the hooks for limiting radial movement of a vessel engaged by the barbs.
18. A vascular device comprising a tubular-like member having proximal, intermediate and distal portions, the tubular like member being expandable from a collapsed configuration to an expanded configuration, a plurality of vessel engaging members with penetrating tips extending from the proximal, distal and intermediate portions, wherein expansion of the member to the expanded configuration causes the distal and proximal portions to move axially inwardly and the intermediate portion to buckle radially outwardly to enable the vessel engaging members to secure the vessel walls.
19. An expandable vascular device comprising a framework movable from a collapsed configuration for delivery to a target vessel to an expanded configuration for retaining the vessel, the framework formed by a plurality of longitudinal strips, adjacent longitudinal strips formed by connecting ribs, each of the longitudinal strips terminating at opposing ends in a vessel wall penetrating member to engage the vessel wall.

20. The vascular device of claim 19, further comprising a longitudinal slot formed in each of the longitudinal strips, the longitudinal slot forming a diamond shaped slot in the expanded configuration of the device.
21. The vascular device of claim 20, wherein the longitudinal slots are in substantial axial alignment.
22. The vascular device of claim 21, wherein the connecting ribs are in substantial axial alignment.
23. A vascular system comprising:
a balloon catheter having an elongated shaft and an expandable balloon;
a vascular device mounted over the expandable balloon and composed of shape memory material and having a collapsed position and a memorized position, the vascular device expandable to an expanded position to engage the vessel walls and returnable substantially to the memorized position to bring the walls radially inwardly.
24. The vascular system of claim 23, wherein the vascular device is expandable first to the memorized condition in response to exposure to body temperature and subsequently expanded to the expanded position by inflation of the balloon.
25. The vascular system of claim 23, wherein the vascular device is expandable to the expanded position as the device is substantially simultaneously exposed to body temperature and the balloon is inflated.
26. The vascular system of claim 25, wherein the vascular device is connected to the balloon.
27. The vascular system of claim 26, further comprising a pair of looped sutures connecting the vascular device to the balloon, the sutures separable from the vascular device upon expansion of the balloon to a predetermined size.